Small Business Innovation Research/Small Business Tech Transfer

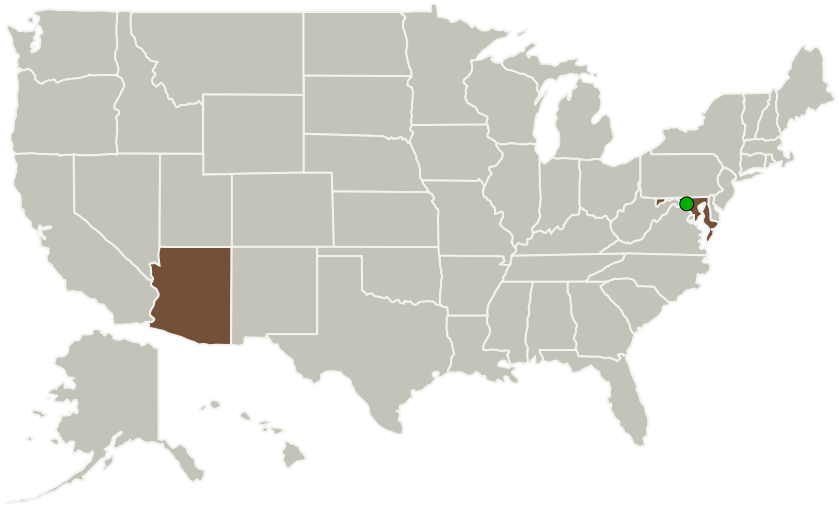
1.57 Micron High Pulse Energy Single Frequency Fiber Laser, Phase I

Completed Technology Project (2017 - 2017)

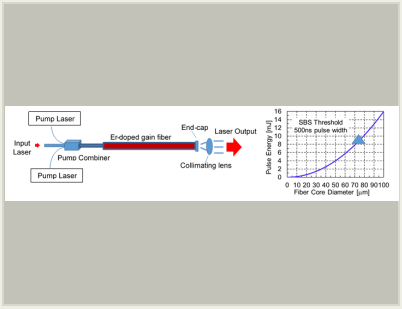
Project Introduction

We propose to demonstrate and build a 1.572 micron single frequency high pulse energy and high peak power fiber laser by using an innovative Er-doped gain fiber with large core diameter and high gain per unit length. 1.572 micron single frequency high energy and high peak power fiber laser is needed for accurately measuring column CO2 concentrations . In Phase I, we will design and fabricate the large core diameter fiber, demonstrate high gain per unit length at 1.572 micron, and demonstrate high pulse energy and high peak power fiber laser with a short piece of gain fiber. Successful demonstration of such a fiber laser will enable many new NASA and commercial applications.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
AdValue Photonics, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Tucson, Arizona
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



1.57 Micron High Pulse Energy Single Frequency Fiber Laser, Phase I Briefing Chart Image

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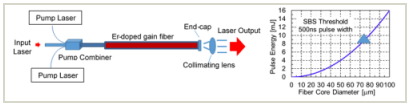
Primary U.S. Work Locations	
Arizona	Maryland

Images



Briefing Chart Image
1.57 Micron High Pulse Energy Single Frequency Fiber Laser, Phase I Briefing Chart Image *(https://techport.nasa.gov/image/136064)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
AdValue Photonics, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

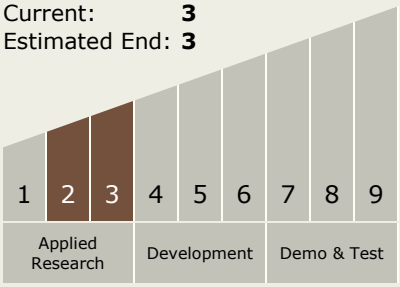
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Shibin S Jiang

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers